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Heart Failure

DO CHANGES OF BRAIN NATRIURETIC AND N-TERMINAL PRO-B-TYPE NATRIURETIC PEPTIDES PREDICT CARDIOVASCULAR EVENTS IN HEART FAILURE PATIENTS? A META-ANALYSIS OF 27 TRIALS IN 15,820 PATIENTS

ACC Moderated Poster Contributions
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Session Title: Biomarkers in Heart Failure: Something Old, Something New
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Background: The relationship between brain natriuretic peptide (BNP) and N-terminal pro-B-type natriuretic peptide (NT-proBNP) plasma levels and risk of cardiovascular events in patients with heart failure (HF) has been demonstrated in previous studies. However, it is unclear whether changes of BNP and NT-proBNP predict clinical events in HF patients. The aim of the study was to explore the association between changes in neuro-hormonal activation and mortality/morbidity in HF patients.

Methods: The MEDLINE, Cochrane, ISI Web of Science and SCOPUS database were searched for articles about HF treatment until November 2011. Randomized trials assessing BNP and/or NT-proBNP at baseline and at end of follow-up and reporting clinical end-points (all-cause death and hospitalization for HF) were included in meta-analysis. Meta-regression analysis was performed to test the relationship between BNP and NT-proBNP changes and two clinical end-points: all-cause death and the composite of all-cause death and HF hospitalization. The influence of baseline patients' characteristics, BNP and NT-proBNP at baseline and at end of study, follow-up and study publication year were also explored. Macaskill's modified test was used to assess publication bias.

Results: 27 trials enrolling 15,820 participants were included. In meta-regression analysis, no relationship between BNP changes from baseline to end of follow-up and outcomes was detected (all-cause death: t=0.66, p=0.52; composite outcome: t=0.19, p=0.85). Similarly, NT-proBNP changes did not correlate to all-cause death (t=2.38, p=0.08) whereas they correlated to changes of the composite outcome (t=2.95, p=0.03). By sensitivity analysis no influence of potentially confounder variables was observed and no publication bias was detected.

Conclusions: In HF patients, changes of neuro-hormonal peptides levels do not predict the effects of therapies on all-cause death, but, for NT-proBNP, correlate to the combined occurrence of all-cause death and HF hospitalization.